

Monetizing GHG Emission Credits from LFG To Energy Projects

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ZAPCO



THE TRANSACTION



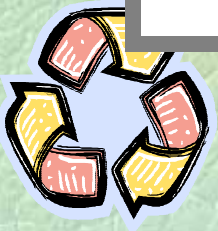
- Bilateral agreement
- Not a Market Exchange activity
- Buyer was Ontario Power Group (OPG)
- Seller was Zahren Alternative Power Corporation (ZAPCO)
- Real time emission reduction credit (ERC) not a future nor option
- Target of 2,000,000 tons of ERCs



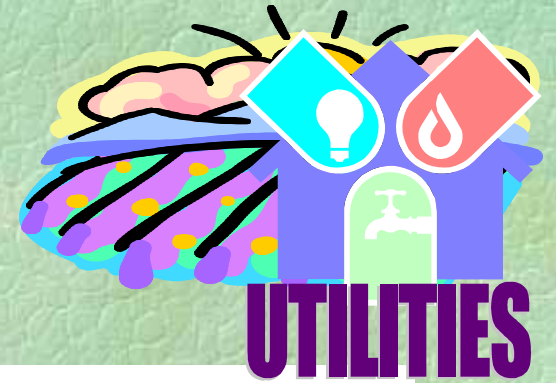
LESSONS LEARNED



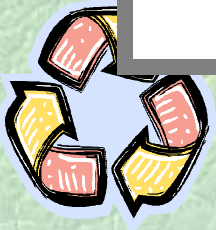
- ☛ A Guide is needed
- ☛ Multiple 3rd Party involvement
- ☛ Incredible detail is required
- ☛ Top management attention throughout the process
- ☛ Transaction costs and energy require sufficient volume (\$) to justify



A BUYER IS ESSENTIAL

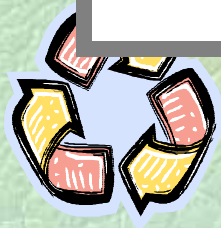


- ☞ All purchases are voluntary
- ☞ OPG made a corporate commitment to purchase a certain amount of ERCs for 1998, 1999, and 2000
- ☞ OPG had a condition that ERCs must meet Province of Ontario PERT (now CACI) guidelines



THE GUIDE'S ROLE

- 🌱 Knowledge of the GHG activities
- 🌱 I identify the Buyer and the Seller
- 🌱 Familiar with the emerging market place and the rules of engagement
- 🌱 Understands the PERT process
- 🌱 Our guide was :
Environmental Financial Products



PERT PROTOCOL



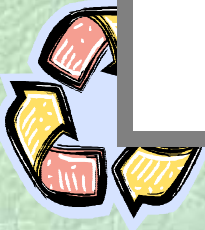
- Real : the facilities exist
- Surplus : to applicable regulations
- Claimable : clear title (ownership) to ERCs
- Unique: nobody else has or will claim them
- Quantifiable : can the ERCs be quantified or measured?



THIRD PARTY INVOLVEMENT



- ☞ Independent Expert verification
- ☞ Accountants : verification process
- ☞ Engineering firms : understand specific issues (I T-Emcon)
 - Facility existence
 - Environmental Regulations
 - Quantification & Measurement
- ☞ Lawyers : clear title, unique, etc.



TRANSACTION PROCESS



- 🌱 Develop the Methodology
- 🌱 Review with PERT (CACI)
- 🌱 Review with OPG
- 🌱 Implement methodology
- 🌱 File with PERT(CACI)
- 🌱 PERT panel reviews & questions
- 🌱 Presentation to General meeting of PERT



SURPLUS



🌱 NSPS

- Tier 1 or Tier 2 Analysis required
- Had to defend some challenges

🌱 Voluntary controls for energy use or other reason



CLAIMABLE



- ☛ Rights to LFG & derivatives not enough
- ☛ Destruction of LFG not enough
- ☛ Needed agreement from each party in the flow of LFG from landfill to power plant
- ☛ Two projects eliminated because public agencies would not agree to contract amendments even



QUANTIFIABLE



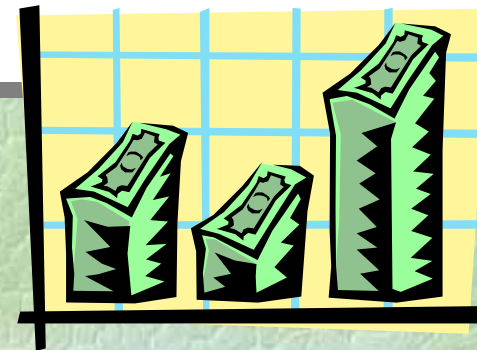
- ☞ Meters: model, precision, calibration
- ☞ Power plants: KWH sold, model, efficiency
- ☞ Flared gas : how quantify?
- ☞ Destruction efficiency
- ☞ One site deleted
- ☞ Substantial amount of flared gas eliminated



IS IT WORTH IT?



- ☞ Transaction costs and hurdles are high
- ☞ A Market Exchange does not exist; each deal is negotiated independently
- ☞ Deals that have been reported range from \$0.50 to \$8.00 per ton of carbon dioxide equivalent of ERC
- ☞ Options, future purchases, and real time



VALUE TO LFG PROJECT



☘ Methane has a 21 to 1 GHG equivalent compared to carbon dioxide

☘ Price(\$) per ton = \$ per KWH

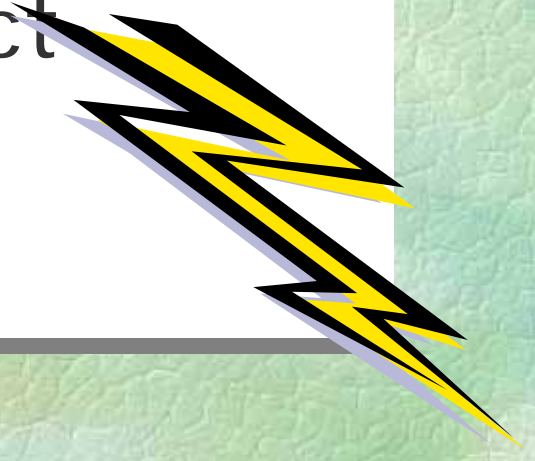
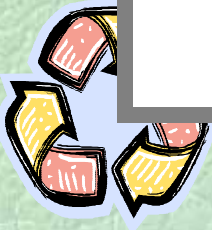
- \$0.50 = \$0.002
- \$1.00 = \$0.004
- \$3.00 = \$0.012



ECONOMIC IMPACT



- ☞ Future sales will depend on some mechanism for international enforcement (Kyoto)
- ☞ A viable Market Exchange
- ☞ Market price around \$3.00
- ☞ Conditions to Create a project
- ☞ Always value added



*“Collecting and
Combusting LFG is
still the Right Thing
to Do, It is Good for
the Environment!”*

